

reference of the priority application into a U.S. application is permitted under MPEP § 608.01(p). See the attached copy of the petition decision of January 10, 2000.

Concerning paragraph 6 of the Office Action, the specification has been amended to correct the typographical errors noted on pages 5, 8, and 9. Concerning Table 3, Applicants are requesting the insertion of the missing table and its accompanying description. Basis for this amendment is found in the priority application which has been incorporated by reference. A declaration stating that the amendatory material consists of the same material incorporated by reference in the referencing application is being submitted herewith. Copies of the priority applications have already been submitted.

The objection to Claim 19 is believed to be moot in light of the cancellation thereof.

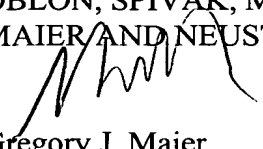
Claims 1 and 16 have been amended to recite that the non-woven fabric of the collector includes a core-sheath composite fiber of a polypropylene core and a polyethylene sheath. Basis for this can be found in the first paragraph of Example 1 on page 13 of the specification.

There is no description in the applied prior art (JP '958, Stepanov et al, JP '238 or Hasebe et al.) of a collector for an alkaline secondary comprising a non-woven fabric including a core sheath composite fiber of a polypropylene core and a polyethylene sheath. The claims are therefore believed to define over the cited references and to be in condition for allowance.

Applicants therefore believe that the present application is in a condition for allowance, and respectfully solicit an early notice of allowability.

Respectfully submitted,

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IN THE SPECIFICATION

Please amend the paragraph beginning at page 5, line 17, as follows:

--In this method, the hydrophilizing step preferably includes a treatment selected from sulfonation, gaseous fluorine treating, and vinyl monomer grafting. The nonwoven fabric hydrophilized by the above treatment has a uniform and fine negative charge over the entire region. In this collector, the plated nickel film is tightly [banded] bonded to the nonwoven fabric, improving its conductivity. Moreover, the plated nickel film does not scale off in use in an aqueous 20-35 weight% KOH solution, which is an electrolyte generally used in alkaline secondary batteries, over a long period, preventing an increase in surface resistance.--

Please amend the paragraph beginning at page 8, line 20, as follows:

--The heat treatment is performed at a temperature between the softening temperature and the pyrolyzing temperature of the fiber. At a significantly low temperature within the above range, the resulting nonwoven fabric exhibits low mechanical strength due to insufficient hot melting, resulting in damage when an active material paste is loaded. At a significantly high temperature, the porosity decreases due to melt of the fibers, resulting in a decreased loading density of an active material paste. When the above-mentioned core-sheath composite fiber is used, the heat treating temperature is preferably in the range of 120°C to [1400] 140 C. The entangling treatment and the heat treatment may be

independently performed. Preferably, the nonwoven fabric is entangled and is then heated to significantly improve mechanical strength thereof.--

Please amend the paragraph beginning at page 9, line 9, as follows:

--Sulfonation may be performed by immersion treatment using, for example, fuming sulfuric acid, sulfuric acid, sulfur trioxide, chlorosulfuric acid or sulfuryl chloride. Among these, sulfonation using fuming sulfuric acid is preferable due to high reactivity. Any gaseous fluorine treatment may be effective in the present invention. For example, the nonwoven fabric may be exposed to a mixed gas of gaseous fluorine diluted with an inert gas such as nitrogen or argon, and at least one gas selected from oxygen, carbon dioxide and sulfur dioxide. When the nonwoven fabric is exposed to gaseous sulfur dioxide and then gaseous fluorine, the nonwoven fabric is effectively and permanently hydrophilized. Any vinyl monomer grafting treatment may be used in the present invention. For example, the nonwoven fabric is immersed in a grafting solution containing at least one monomer selected from acrylic acid, methacrylic acid, an acrylic ester, a methacrylic ester, vinylpyridine and styrene, and then is irradiated with ultraviolet rays. Among these monomers, acrylic acid is preferable since this monomer does not cause scaling off of the plated metal film and an increase in surface resistance in use over long time in an aqueous [20, 35] 20-35 weight% KOH solution, which is used as an electrolyte solution.--

Between pages 21 and 22, please insert the following:

--TEST 3

Batteries 1, 4, 7, 10, 13, 16, 19, 22, and 25 used in TEST 2 were prepared. Each battery was charged for 6 hours at a charge rate C/5, wherein C was the capacity of the

battery, and was allowed to stand for 1 hour. Next, the battery was discharged at a discharge rate of 10C until the voltage became 0.8 V to measure the discharge capacity C1 at this time. The high-rate discharge characteristic R1 represented by the ratio $C/C1$ was thereby determined.

Furthermore, each battery was charged for 6 hours at a charge rate $C/5$ and was allowed to stand for 1 hour. The battery was discharged at 400 mAh until the voltage became 0.9 V. This charge/discharge operation was repeated 500 times to determine the high-rate discharge characteristic R2 represented by C_{500}/C_{MAX} wherein C_{500} was the discharge capacity at the 500th cycle and C_{MAX} was the maximum discharge capacity in the 500 cycles.

Table 3 shows the high-rate discharge characteristics R1 and R2.

Table 3

Battery	Positive Electrode	Negative Electrode	R1	R2
1	EXAMPLE 5	EXAMPLE 5	87	91
4	EXAMPLE 5	COMPARATIVE EXAMPLE 3	86	90
7	EXAMPLE 5	COMPARATIVE EXAMPLE 4	49	10
10	COMPARATIVE EXAMPLE 3	EXAMPLE 5	88	92
13	COMPARATIVE EXAMPLE 4	EXAMPLE 5	50	12
16	COMPARATIVE EXAMPLE 3	COMPARATIVE EXAMPLE 3	88	89
19	COMPARATIVE EXAMPLE 3	COMPARATIVE EXAMPLE 4	48	13
22	COMPARATIVE EXAMPLE 4	COMPARATIVE EXAMPLE 3	49	14
25	COMPARATIVE EXAMPLE 4	COMPARATIVE EXAMPLE 4	20	Undischarged

IN THE CLAIMS

1. (Amended) A collector for an alkaline secondary battery comprising;
a nonwoven fabric including a core-sheath composite fiber of a polypropylene core and a polyethylene sheath, which nonwoven fabric has been hydrophilized by one of sulfonation, gaseous fluorine treatment and vinyl monomer grafting; and
a nickel film plated on the nonwoven fabric.

6-15. (Canceled).

16. (Amended) An alkaline secondary battery comprising a collector including a nonwoven fabric including a core-sheath composite fiber of a polypropylene core and a polyethylene sheath, which nonwoven fabric has been hydrophilized by one of sulfonation, gaseous fluorine treatment and vinyl monomer grafting; and a nickel film plated on the nonwoven fabric.

18. [The alkaline secondary battery according to claim 16] An alkaline secondary battery comprising a collector including a nonwoven fabric which has been hydrophilized by one of sulfonation, gaseous fluorine treatment and vinyl monomer grafting; and a nickel film plated on the nonwoven fabric, wherein the nonwoven fabric includes crimped fibers.

19. (Canceled).